

Germanium for VCSELs

**A breakthrough in the development of
Germanium wafers for VCSELs**

November 2020

Bendix De Meulemeester
Director Marketing & Business Development

Who we are

A global materials technology and recycling group



Our business groups



Catalysis



Energy & Surface
Materials



Recycling

Germanium

Big in space



Extra performance

Ge provides a third junction



Extra lightweight

Ge is stronger than GaAs

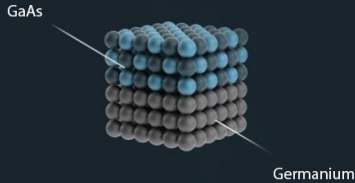


Extra surface

Ge wafers exist up to 300 mm

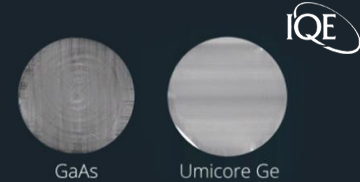
Successful development of 6" Germanium wafers for VCSELs

Excellent lattice match right in between **GaAs** and **AlAs**

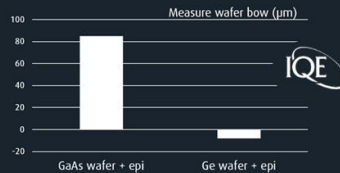


**Germanium
blows GaAs
out of the
water!**

Umicore Ge has **zero dislocations**



Reduced stress leads to much **lower bow**



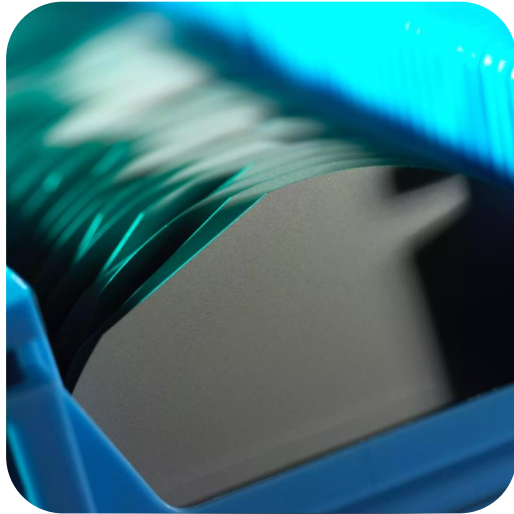
Yield losses
27 to 53%
500 MUSD lost

**Germanium has
large benefits**

HYOLE
Développement



6" Germanium wafers for VCSELs



Readily available for
sampling and purchase



Get in touch!

substrates@umicore.com

Connecting Life

